

## Claims

[c1] What is claimed is:

1. A portable device comprising:  
a housing for accommodating a detachable battery, the  
detachable battery providing main power for operations  
of the portable device;  
a sensor installed in the housing for detecting conditions  
of the detachable battery;  
an operating processor for controlling operations of the  
portable device; and  
a starting module electrically connected to the sensor for  
outputting a turn-on signal to the operating processor  
so as to automatically turn on the portable device after  
the sensor detects the detachable battery being correctly  
installed in the housing.

[c2] 2. The portable device of claim 1, wherein the housing  
comprises a battery vessel and a battery cover plate, and  
the battery cover plate is detachably joined with the bat-  
tery vessel.

[c3] 3. The portable device of claim 2, wherein the sensor  
comprises a conducting port and a cover triggering port,  
wherein while the cover triggering port detects if the bat-

tery cover plate is correctly joined with the battery vessel, the conducting port detects whether the type of the detachable battery is correct and the power volume of the detachable battery is sufficient, and the conducting port also detects if the detachable battery is correctly installed in the battery vessel.

- [c4] 4. The portable device of claim 3, wherein when the conducting port detects that the type of the detachable battery is not correct, the power volume of the detachable battery is insufficient, or the detachable battery is not correctly installed in the battery vessel, the starting module does not output the turn-on signal to the operating processor.
- [c5] 5. The portable device of claim 3, wherein when the cover triggering port detects that the battery cover plate is not correctly joined with the battery vessel, the starting module does not output the turn-on signal to the operating processor.
- [c6] 6. The portable device of claim 3, wherein after the type of the detachable battery is correct, the power volume of the detachable battery is sufficient, the detachable battery is correctly installed in the battery vessel, and the battery cover plate is correctly joined with the battery vessel, the sensor outputs a correct signal to the starting

module.

- [c7] 7. The portable device of claim 6, wherein when the starting module receives the correct signal from the sensor, the starting module transforms the correct signal into the turn-on signal and transmits the turn-on signal to the operating processor so as to turn on the portable device.
- [c8] 8. The portable device of claim 1 further comprising a backup battery for providing power for partial operations of the operating processor before the detachable battery is correctly installed in the housing.
- [c9] 9. The portable device of claim 1, wherein the turn-on signal is a pulse signal.
- [c10] 10. The portable device of claim 1 being a notebook, a mobile phone, or a personal digital assistant (PDA).
- [c11] 11. The portable device of claim 1, wherein the operating processor is a central processing unit (CPU).
- [c12] 12. A portable device that can be automatically turned on by detecting conditions of a battery, which is detachably installed in the portable device for providing main power for operations of the portable device, the portable device comprising:

a housing for accommodating the battery, the housing comprising a battery vessel and a battery cover plate, wherein the battery cover plate is detachably joined with the battery vessel for conveniently replacing the battery installed in the battery vessel;

a sensor installed in the housing for detecting conditions of the battery cover plate and the battery to determine if the battery is correctly installed the battery vessel and the battery cover plate is correctly joined with the battery vessel;

an operating processor for controlling operations of the portable device; and

a starting module electrically connected to the sensor for outputting a turn-on signal to the operating processor to automatically turn on the portable device after the battery is correctly installed in the battery vessel and the battery cover plate is correctly joined with the battery vessel.

- [c13] 13. The portable device of claim 12, wherein when the sensor detects that the battery is correctly installed in the battery vessel and the battery cover plate is correctly joined with the battery vessel, the sensor outputs a correct signal to the starting module.
- [c14] 14. The portable device of claim 12, wherein when the sensor detects that the battery cover plate is not cor-

rectly joined with the battery vessel, the starting module does not output the turn-on signal to the operating processor.

- [c15] 15. The portable device of claim 12, wherein when the sensor detects that the type of the battery is incorrect and the power volume of the detachable battery is insufficient, the starting module does not output the turn-on signal to the operating processor.
- [c16] 16. The portable device of claim 12, wherein the sensor comprises a conducting port and a cover triggering port, wherein while the cover triggering port detects if the battery cover plate is correctly joined with the battery vessel, the conducting port detects whether the type of the detachable battery is correct and the power volume of the detachable battery is sufficient, and the conducting port also detects if the detachable battery is correctly installed in the battery vessel.
- [c17] 17. The portable device of claim 12 further comprising a backup battery for providing power for partial operations of the operating processor before the detachable battery is correctly installed in the housing.
- [c18] 18. The portable device of claim 12, wherein the turn-on signal is a pulse signal.

- [c19] 19.The portable device of claim 12 being a notebook, a mobile phone, or a personal digital assistant(PDA).
- [c20] 20.The portable device of claim 12, wherein the operating processor is a central processing unit (CPU).